

17

PARTNERSHIPS
FOR THE GOALS



STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

CASE STUDY: ITAIPU AND SDG 17

Activities by ITAIPU Binacional supporting implementation of the Sustainable Development Goal 17 (SDG 17) of the United Nations 2030 Agenda for Sustainable Development



Alexandre Marchetti

17

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WHERE WE ARE



Integration that
generates Renewable
Energy and promotes
Sustainable Development

The background of the entire page is a photograph of the Itaipu Dam and its associated high-voltage power lines. The scene is captured during sunset or sunrise, with a warm, orange and pink sky. The sun is a bright, glowing orb in the upper right quadrant. Several large, steel lattice towers for power lines are visible, with multiple cables stretching across the frame. The bottom of the image shows the calm surface of the reservoir, which reflects the colors of the sky and the silhouettes of the towers. A dark blue, rounded rectangular box is overlaid on the left side of the image, containing the title and two paragraphs of text.

ITAIPU BINACIONAL AND THE UNITED NATIONS 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

Itaipu is a binational entity created in 1974 by Brazil and Paraguay in order to utilize the Paraná River, along the border of the two countries, to generate hydropower. Today, the Itaipu Hydropower Plant is the largest generator of renewable power in the world (ITAIPU, 2018 a). As of 2018, Itaipu had generated a total of over 2.6 billion Megawatts-hour (MWh) since the beginning of its operation, in 1984 (ITAIPU, 2019 a).

Since its conception, Itaipu Binacional has followed sustainable development principles as reflected by its 15 strategic objectives and integrated actions and programs, supporting social well-being, economic growth and environmental protection, contributing to regional prosperity in Paraguay and Brazil. Itaipu's activities in the region have been recognized as excellent examples of "Best Practices" in the effective implementation of the United Nations 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) (ITAIPU, 2019 b).



SDG 17: STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

Target 17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection

Target 17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries

Target 17.3 Mobilize additional financial resources for developing countries from multiple sources

Target 17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress

Target 17.5 Adopt and implement investment promotion regimes for least developed countries

Technology

Target 17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism

Target 17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed

Target 17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology

Source: United Nations, 2015.

Capacity-building

Target 17.9: Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation.

Trade

Target 17.10: Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda

Target 17.11: Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020

Target 17.12: Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access

Systemic issues

Policy and institutional coherence

Target 17.13: Enhance global macroeconomic stability, including through policy coordination and policy coherence

Target 17.14: Enhance policy coherence for sustainable development

Target 17.15: Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development

Multi-stakeholder partnerships

Target 17.16: Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries

Target 17.17: Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

Data, monitoring and accountability

Target 17.18: By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts

Target 17.19: By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

Source: United Nations, 2015.



Kiko Sierich, PTI

SUSTAINABLE DEVELOPMENT STRATEGY OF ITAIPU

Itaipu's vision for 2020 is to be "the generator of clean, renewable energy with the best operating performance and the world's best sustainability practices, promoting sustainable development and regional integration" (ITAIPU, 2018 b).

Itaipu is a unique example of how a binational partnership can successfully promote peaceful and long-lasting integration between two nations while generating clean and reliable energy for their citizens, ultimately inducing prosperity and sustainable development. One of the main pillars of Itaipu's corporate strategy are inclusive and fully participatory policies and practices, implemented by its many effective and far-reaching multi-stakeholder partnerships.

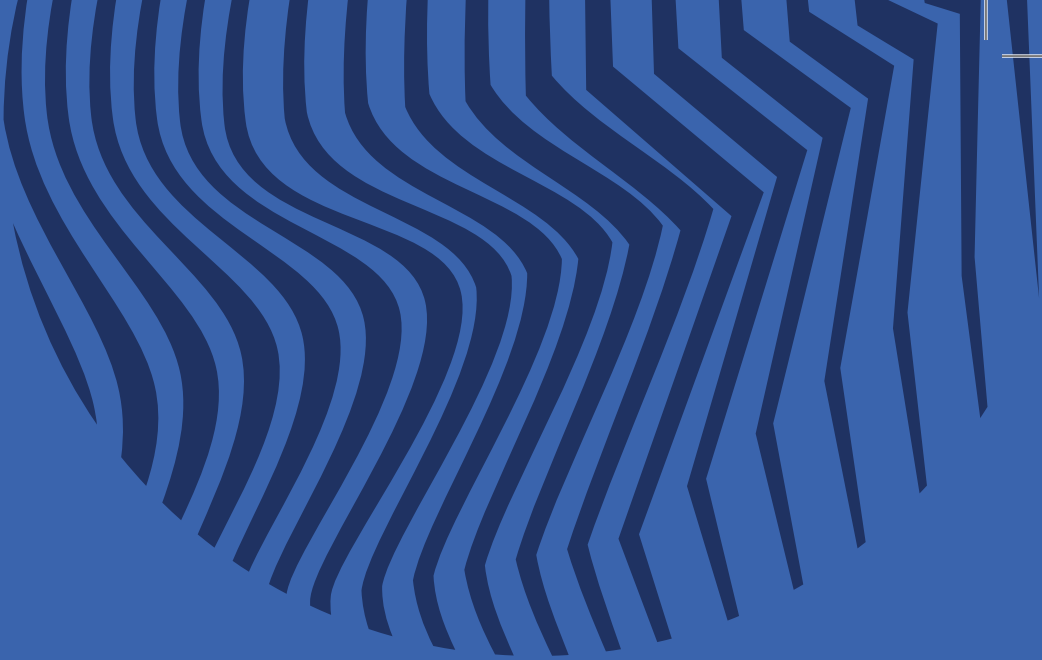
Since its inception, Itaipu has recognized the need to include all relevant stakeholders in the design and implementation of all its major activities. With its extensive multi-stakeholder partnership network, Itaipu has been able to mobilize and share knowledge, expertise, technologies and financial resources, to achieve many specific objectives within the social, economic and environmental dimensions of sustainable development.

For Itaipu, inclusive participation through multi-stakeholder partnerships is a major commitment, intrinsically linked to its management system and constitutes one of its most important issues in its different lines of action. Itaipu follows policies and practices in partnership with many organizations and civil society that promote prosperity and contribute to improving the well-being of the population in many communities in both Paraguay and Brazil. The Entity leads important partnerships for the advancement of sustainable regional development, helping to build more responsible, equitable and solidary societies. In Brazil, these actions have taken place mainly in the area of influence of the Reservoir, and extend to many municipalities in the western region of the state of Paraná. In Paraguay, many of the actions have national coverage and benefit different regions of the country.

Through effective multi-stakeholder partnerships at the local, national, regional and international levels, Itaipu is leading and supporting important activities to reduce poverty, increase food security while enhancing nutrition, improve health, foster better education and promote equality with respect to gender, age, disabilities, race, religion, ethnicity and economic status. These partnerships also promote income generation, protection of children and adolescents, respect for human rights, conservation of biodiversity, and sustainable means of production and consumption.



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1.

**ITAIPU
THE BINATIONAL PARTNERSHIP**



Historical photo of ITAIPU Binacional

Objective and description

Itaipu is a binational entity created by Brazil and Paraguay in order to generate electricity from hydropower using the Paraná River, between the Salto de Guaíra to the mouth of the Iguaçu River. ITAIPU has the mission of “Generating quality electricity, with social and environmental responsibility, promoting economic, tourism, and technological development, sustainably, in Brazil and Paraguay” (ITAIPU, 2018 a).

Located on the Paraná River, on the border of Paraguay and Brazil, Itaipu Binacional is the result of cooperation between these two nations. It is not only the result of the mechanical, civil, and electrical engineering required for the construction of the plant, but also the result of major diplomatic, financial and legal arrangements.

The diplomatic arrangements ensured fair treatment between two independent countries and resolved border issues. The financial arrangements allowed the hydroelectric plant to be financed almost entirely, with debt payments to be made from the electricity generated (Sória, 2012). The legal arrangements created a business model so that Itaipu is “legally international, consisting of an emerging legal entity in the field of public international



Historical photo of ITAIPU Binacional

law (...) as an international public service concessionaire common to two States ” (ITAIPU, 2004).

Diplomatic understandings between the Brazilian and Paraguayan governments began in the 1960s, after initial studies pointed to the great hydroelectric power potential of the Paraná River. These understandings resulted in the Act of Iguaçu, a document signed on June 22, 1966, in which the Paraguayan and Brazilian governments expressed “the disposal (...) to proceed common agreement to study and surveys from the economic availability, in particular the hydraulic resources belonging in condominium to the two countries” (ITAIPU, 2005).

This document already highlights some characteristics that would be important in the project: the division into equal parts of the electricity that would be generated; the preemptive right to the acquisition of energy that would not be used by the other partner; and concern for sustainability (although the term was not yet in use), as is clear in item 5 of the Act, in which the parties agree to:

“(...) study the common problems of the area, with sight to promote the full exploitation of the natural resources of the region and its economic development, benefit of the prosperity and well-being of the populations (...)”. The document also highlights the need for studies and actions to ensure the protection of the banks of the Paraná River. Also, among the preparatory acts, there is the creation of the Brazilian-Paraguayan Joint Technical Commission in 1967, which would further study the hydroelectric potential.

The diplomatic studies and understandings between Paraguay and Brazil resulted in the Treaty of Itaipu (and its annexes), signed on April 26, 1973, which establishes, in its Article III, that the “The High Contracting Parties create, with equal rights and obligations, a binational entity denominated Itaipu (...) constituted by ELETROBRAS and by ANDE, with equal capital participation, governed by the rules established in the present Treaty, in the Statute that constitutes its Annex A and in the other Annexes”(ITAIPU, 1973). In this case, Annex B describes the installations for energy production and auxiliary works and Annex C is concerned with the provisions on the financial part of the project.

Itaipu Binacional would be created the following year, on May 17, 1974. The construction of the plant (civil works) would extend until 1982, with the completion of the dam and filling of the reservoir. The electromechanical assembly of the 18 generating units foreseen in the initial



project took place until 1992. Another two units were added and opened in 2007(ITAIPU, 2018 c) so that total installed capacity reached 14,000 Megawatts (MW).

The commercial operation began on March 1, 1985, and, as a result, Itaipu began to pay royalties to the national treasures of Brazil and Paraguay, as financial compensation for the flooded areas to form the Reservoir. Since 1985, Itaipu has paid more than US\$ 11 billion in royalties, half for each country (ITAIPU, 2019 b). It guarantees extra revenue to state entities, such as government agencies and municipalities, to prioritize investment in health, safety and education.

Today, Itaipu is the largest hydropower generator on the planet, and a fair example on how two countries can mobilize and redistribute benefits, in a sustainable way, to assist their people, protect the environment and boost both economies.



The binational undertaking will reach its 50th anniversary in 2023 and, with it, the renewal of part of its Binational Agreement (C annex, the financial section) that is considered a reference worldwide. The journey has been long, with an extensive list of achievements, and the joint effort of these two nations has proven that this major binational partnership endeavor has served as a powerhouse to bring much growth, prosperity and sustainable development to these two countries. Through its extensive partnership network, Itaipu has emerged as one of the most successful and respected binational partnership efforts in sustainable development and environment and biodiversity. Itaipu operates in the physical space occupied by the plant and its Reservoir, on the border of Brazil and Paraguay, as well as in the area of influence in Brazil (over 50 municipalities) and Paraguay (the entire country). Both countries benefit from the payment of royalties and Itaipu's power generation

reaches all electricity consumers in Brazil and Paraguay (ITAIPU, 2019 c).

The Treaty of Itaipu has paved the road for Paraguay and Brazil to sort out differences in all areas and complexities, ensure progress towards integration, solve territorial border issues, make possible and lead to the success of one of the largest hydroelectric undertakings on the planet.

Over the past 46 years, Itaipu Binacional has represented the great, constant and successful quest, effort and integration of two nations in Partnership, with two different peoples with different languages, culture and history, for becoming one very highly efficient hydro technological power, the highest-ranked producer-generator of clean renewable, sustainable energy and holder of world renown, recognition and respect technologically and industrially.

Today, Itaipu is a major partnership aligned with and committed to the United Nations 2030 Agenda for Sustainable Development, also achieving a world-leading reference position resulting from its work, progress and advance regarding the Sustainable Development Goals and its targets.

The ITAIPU Binacional Partnership, by going beyond the boundaries of its own original nature and conquering the gaps between these two important nations, has extended its efforts and determination by forming some of the most challenging partnerships at a global level with important world organizations but also at the regional level and with official and private organizations. In addition, Itaipu has extensive partnerships with all stakeholders at the local and national levels, including civil societies and rural and urban communities. Therefore Itaipu is well positioned with its sustainable development transformation network of collaborative and complementing partnerships to support the implementation of the 17 Sustainable Development Goals and its targets and the universal 2030 Agenda of the UN, concretely and factually integrating the indivisible balance required of the economic, social and environmental dimensions of sustainable development.

This powerful partnership network of Itaipu has generated a successful account of a significant, outstanding and measurable binational sustainable improvement and development to the region, through the various

socio-economic, technological, educational and environmental programs, of different magnitude and scope, that have strategically impacted the whole socio-economic well-being with steady growth and full inclusion, reaching out even to the most vulnerable population sectors in urban and rural areas and indigenous communities.

The interlinkages and integrated nature of ITAIPU Binacional's network of thousands of collaborative partnerships have resulted in important achievements in projects, activities and initiatives ranging from infrastructure, environmental, education and health programs, to humanitarian programs promoting peace and prosperity. These partnerships act through several dimensions, including institutional, technological, scientific, economic, social and environmental.

Related Targets

Itaipu Binacional represents a strong and unique example of a binational entity helping to strengthen the means of implementation and to revitalize the Global Partnership to Sustainable Development, which are the overall objectives of SDG 17 of the 2030 Agenda for Sustainable Development.

The effective actions of Itaipu are evident in all the different themes addressed by SDG 17: finance, technology, capacity building, trade and systemic issues. Within systemic issues, Itaipu's activities are directly linked to policy and institutional coherence, multi-stakeholder partnerships, monitoring and accountability.

With respect to technology, Itaipu is a strong alliance example between two South American nations; therefore, it is also a concrete example of a binational entity enhancing the South-South regional and international cooperation and the access to science, technology and innovation. These are objectives consistent with Target 17.6. The creation of the Itaipu Technology Park provided access to science, technology, and innovation that support the sustainable development in the border region between Paraguay

and Brazil (Sória, 2012). Itaipu also promotes the development, transfer, dissemination and diffusion of environmentally sound technologies in the region and with other countries, which is a task linked to Target 17.7.

In relation to multi-stakeholder partnerships, within the framework of its mission and corporate vision, Itaipu enters into partnerships through agreements and accords with national and local public sector actors, multilateral organizations, non-governmental organizations, civil society and academia, with the aim of promoting and cooperating in sustainable development. Itaipu has an extensive network of partnerships at the local, community, state, national, regional and international levels. Itaipu's partnerships also mobilize and share knowledge, expertise, technology and financial resources, helping to support the achievement of the sustainable development goals in the region between the two countries. By encouraging and promoting effective public, public-private and civil society partnerships, these actions are consistent with Targets 17.16 and 17.7.

Itaipu is an active promoter of sustainable development through multi-sector partnerships, with governments and governmental organizations at the federal, state, and municipal levels as well as with educational and research institutions and civil society, among others (ITAIPU, 2019 d). At the international level, the Entity has a history of partnerships with United Nations organizations such as UNDESA, UNESCO, UNDP and UNFCCC, among others. Currently Itaipu is participating in the global annual conferences (COPs) on climate change (ITAIPU, 2018 d) and is leading a global effort on "Sustainable Water and Energy Solutions" with UNDESA (ITAIPU, 2019 f).

Challenges

The diplomatic, financial, and legal "engineering" effort involved in the design of the Itaipu Binacional agreement and the subsequent successful and reliable operation of the hydropower plant have been fundamental for the establishment of solutions to the main challenges faced by the two countries in this major endeavor. These challenges derive primarily from the

asymmetries between Brazil and Paraguay. The main ones are economic and cultural divergences derived from different heritage.

The successful and reliable operation of the Itaipu Hydropower Plant for more than three decades has been a very challenging activity. Ensuring sustainable generation of clean and renewable energy as well as designing, developing and implementing scientific, technological, and innovative programs to ensure reliable and efficient services are continuous demanding tasks for Itaipu.

Itaipu Binacional is situated in one of the most productive agricultural regions in Brazil and Paraguay. Therefore, the water bodies that connect the territory with the Reservoir are subject to environmental threats arising from the use of pesticides, waste from livestock production and soil erosion. Keeping water bodies without contaminants has been a commitment for Itaipu since the starting of its operation.

There are also many other environmental challenges. Itaipu is committed to the defense and preservation of the region's biodiversity and ecosystem services through the development of responsible awareness and in situ and ex situ conservation projects, that concretely and effectively preserve biological diversity by linking fragmented forest areas, promoting sustainable land uses and practices, and breeding native animal species that are at risk of extinction for reintroduction in the nature. These rewilding initiatives are very important and challenging tasks.

Lessons learned

Itaipu has proved that two nations sharing natural resources such as water, energy and land can work together in a technical endeavor contributing to sustainable development, prosperity and peace. Itaipu is a successful undertaking that represents an effective example of best practice and a beacon for any other initiative in which diplomacy, international law, and respect for human rights and the environment need to be considered.



Víctor Azcona

Results

Currently, Itaipu is the largest generator of clean and renewable energy on the planet, both from cumulative generation – with more than 2.6 billion Megawatt hours (MWh) produced since 1984 – and with an annual electricity generation record of 103.1 million MWh achieved in 2016. In 2018, it reached 96.6 million MWh - the fourth best historical mark - and supplied about 15% of Brazilian and 90% of Paraguayan electricity consumption (ITAIPU, 2019 c).

Itaipu Binacional is a major source of prosperity and an important economic force supporting sustainable development throughout the tri-national border area of Brazil, Paraguay, and Argentina. Itaipu has been operating continuously with high productivity and exceptional reliability for 35 years. Itaipu has remained the main economic engine of the local and regional economy for over three decades.

Itaipu conducts initiatives in the social, economic, environmental and territorial development areas. It has also continued implementing previous projects such as the protection of areas around the reservoir, which total over 100,000 hectares. A detailed description of these initiatives can be found in the Itaipu's annual and

sustainability Reports (ITAIPU, 2019 d), (ITAIPU, 2019 e). Some of these initiatives are summarized as follows:

- Itaipu's initiatives in the river basin in which it operates ensure the quantity and quality of water for multiple uses of the Reservoir, particularly for the long-term generation of power, but also for tourism, leisure, fishing, agricultural activities, and wildlife conservation.
- In the social field, it contributes to health, protection of children and adolescents, education, support for sports and culture, among other actions, to improve the quality of life of communities in the border region.
- In the economic dimension, it generates jobs and economic growth in the region, supported by education and capacity building activities and through its extensive partnership network creates the right economic environment for entrepreneurship and businesses (significant indirect economic impacts).
- It works, through partnerships, on research, development, demonstration and dissemination of new technologies for sustainable development in Paraguay



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and Brazil such as renewable energy sources (biogas, solar and wind), batteries, electric cars, hydrogen, among others.

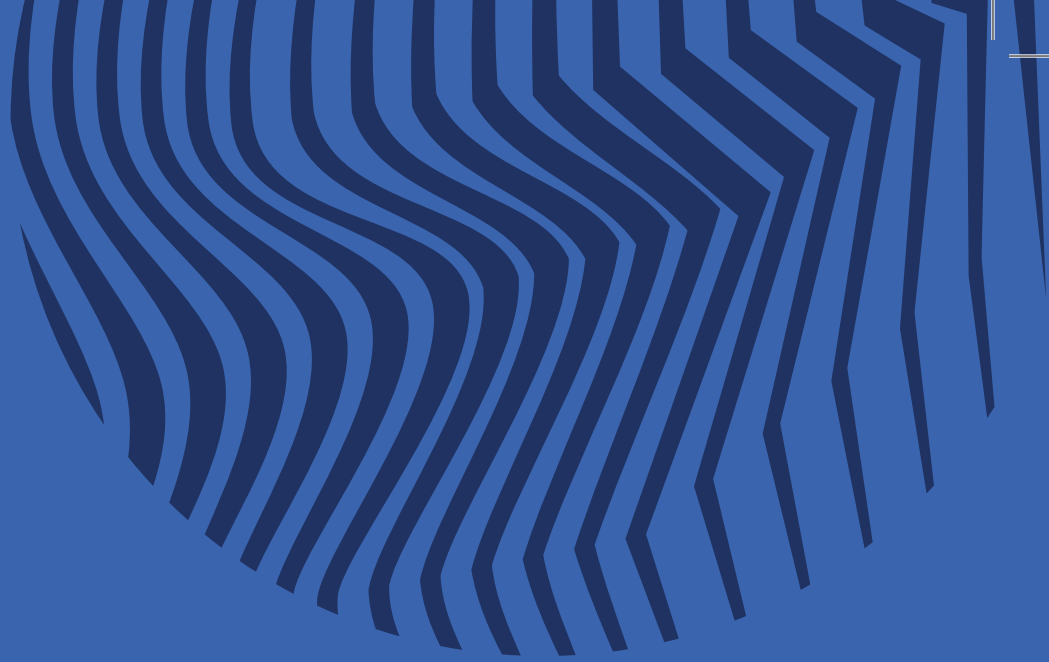
- It stimulates tourism and supports several projects aimed at disseminating and improving the infrastructure of the tri-national region, one of the main tourist centers in South America.
- It has created the Itaipu Technological Park to assist in the execution of these projects and activities as an educational and knowledge generation and dissemination center.
- Itaipu adopted strict Corporate Governance policies. In line with global market requirements and international regulations, and through the adoption of corporate governance by the rules of the Sarbanes-Oxley Act, the most stringent in the international financial market, Itaipu has strengthened its internal control structure, preventing fraud and ensuring adequacy and transparency, thus constantly improving its economic and financial management. In addition, in 2018, Itaipu created its Integrity and Compliance System, a formal governance model that integrates the actions of various agencies to prevent, detect and curb the practice of unlawful acts detrimental to the entity's assets.

- Itaipu became the first hydroelectric plant in the world to have its own protected areas and supporting landscapes to be recognized by UNESCO as core areas of the Biosphere Reserve.

- To ensure water quantity and quality, Itaipu has created an environmental conservation area, planting more than 44 million trees. The protected areas now total over 100,000 hectares, including reserves and wildlife refuges in both countries and the biological forest corridor that protects the Reservoir.



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2.

MAJOR INTERNATIONAL PARTNERSHIPS



Bridge prototype render - ITaipu Binacional

International Bridges

Partnership between Paraguay and Brazil

Since its inauguration on March 27, 1965, the International Friendship Bridge, which connects the cities of Foz do Iguaçu, in Brazil, with Ciudad del Este, in Paraguay, has been the main socioeconomic logistic link between Brazil and Paraguay in the region. Its strategic location plays a fundamental role in the region's development, boosting export and import trade.

In 2018, Itaipu was authorized by the governments of Paraguay and Brazil to finance two new bridges, to enhance commercial activities in the trinational region and to improve security conditions at the border. This initiative is consistent with Itaipu's mission of supporting the well-being of local communities and the regional sustainable development, which are part of the organization objectives and strategic directives. The total investment is estimated at around US\$ 270 million, and the construction is expected to take three years, beginning in 2019.

The construction of the second bridge over the Paraná River, connecting Foz do Iguaçu (on the Brazilian side) and Presidente Franco (Paraguayan side), will strengthen the regional integration, improving the infrastructure for trade and tourism between the two countries. With this new bridge, the International Friendship Bridge will be used exclusively for light vehicles and tour buses. This bridge is, today, the main economic corridor between Brazil and Paraguay. It has helped the Paraguayan city of Ciudad del Este to be lifted up to the position of the third largest free trade zone in the world.

The other new bridge will be built over the Paraguay River, connecting the cities of Porto Murtinho, in Brazil and Carmelo Peralta, in Paraguay. The two new bridges between the two countries will be a further spur to regional development, as they will create new jobs, strengthen integration, support freight logistics and mitigate the traffic at the Foz do Iguaçu Center and on the International Friendship Bridge.

Sustainable Water and Energy Solutions



The Sustainable Water and Energy Solutions partnership between Itaipu and the United Nations Department of Economic and Social Affairs (UNDESA) was created in 2017. The objective of this initiative is to build a global multi-stakeholder partnership and network to enhance capacities, dialogues and cooperation at all levels, for enabling cross-sectoral approaches, advocacy and knowledge management that address the sustainable development goals on water (SDG 6) and energy (SDG 7) and interlinkages with other SDGs holistically, in order to accelerate progress towards the 2030 Agenda for Sustainable Development. Partnership objectives include sharing best practices, experiences, lessons learned, skill development, and global awareness.



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The Sustainable Water and Energy Solutions partnership works toward the vision of a world where there is an equitable and sustainable use and management of water and energy resources for all, in

support of human well-being and ecosystem integrity in a robust economy, under the umbrella of the 2030 Agenda for Sustainable Development. The vision calls for a new way of thinking and a new form of international cooperation on water and energy. It calls for strong partnerships between countries that share common water and energy resources. It calls for the implementation of a new global business model in which governments, businesses, investors and civil society come together to spearhead action toward sustainable water and energy for all. At the national level, it will require major changes in policies, strategies and regulatory frameworks, as well as changes in institutional arrangements and management practices.

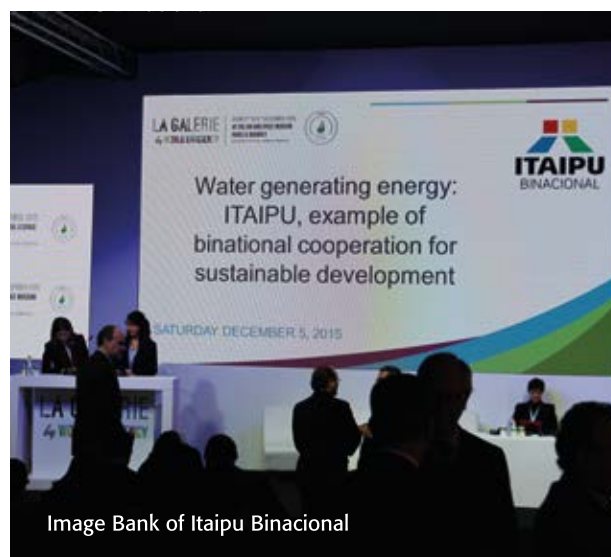


Image Bank of Itaipu Binacional

The partnership has launched the sustainable water and energy network and has already attracted other prestigious organizations which are now partners of this network. The partnership also has conducted capacity building activities in Latin America, Africa and Asia. Another important result are the case studies that are being elaborated by members of the network, which will be shared in the future and that represent best practices that could be replicated by other organizations all over the world. The initiative has also noticeably increased the global awareness and dissemination of the integrated approach to water and energy and their interrelationships through the participation of Itaipu, UNDESA and other members of the network in various international events in Latin America, North America, Europe and Africa, as well as promotional materials, videos and constant presence on social media.



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International Center for Hydroinformatics

Partnership between Itaipu, UNESCO and others

The International Centre on Hydroinformatics (CIH) was created through a partnership between the Brazilian and Paraguayan Governments, with UNESCO's support, in an initiative to develop innovative solutions and hydroinformatic tools, capacity building and knowledge-sharing in the field of sustainable management of water resources and energy generation. The CIH has been actively contributing to UNESCO's International Hydrological Programme (IHP). The IHP promotes the development of scientific and technological bases for the generation of methodologies favorable to a coherent administration of water resources. Based on the evaluation of the methodology of the management Itaipu applies to hydrographic basins and because of its efficiency regarding the necessary care for the water and the environmental sustainability of activities developed in the region, UNESCO offered Itaipu as a reference to the other 70 watersheds overseen by the IHP on the five continents.

The International Centre on Hydroinformatics is located on the Paraguayan side of Itaipu, where a specialized team performs hydroinformatic programs and activities. In the Brazilian side, Itaipu created the Nucleus for Territorial Intelligence – NIT, a complex of laboratories and specialized equipment and teams. The NIT supports and promotes research and development on important issues related to water conservation and territorial environmental management, fulfilling information and knowledge gaps for the proper administration of water resources. The main research areas of NIT are: biodiversity conservation, water security, territorial intelligence, meteorology and climate change.



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Partnership between Itaipu and the International Hydropower Association

Itaipu Binacional is a partner of the International Hydropower Association (IHA) and an active member of its Board since 2016. The International Hydropower Association is a nonprofit organization committed to advancing sustainable hydropower. The objective of the partnership is to identify, promote and disseminate best practices, and advocate for continuous improvement around the world. IHA researches and shares hydropower statistics and knowledge, and brings together public and private organizations, concessionaires, agencies, consultancies and institutions related to hydro-based energy production. IHA members are active in over 100 countries. The IHA Protocol is the main international instrument for assessing and certifying the sustainability of hydroelectric power practices. To make it acceptable to all sectors, IHA promotes a number of forums in various countries, where the terms of the Protocol are discussed.

The actions by Itaipu related to the IHA partnership are implemented at the plant itself and in its area of influence or at the international level through participation in international events. Itaipu's participation in IHA has enhanced its international

image and global recognition as a model organization supporting sustainable development and the UN SDGs and 2030 Agenda.

Partnership between Itaipu and the Smithsonian Institution

Today, Itaipu holds under its management the largest Atlantic forest remnants of the Alto Paraná Atlantic Forest, with many species of concern for conservation. The protected areas of Itaipu represent one of the last shelters that safeguard the region's biodiversity, in addition to protecting the hydroelectric resources, reducing erosion and sedimentation of the Reservoir and contributing to mitigation and adaptation to climate change. In that context, researchers and scientists from the Smithsonian Conservation Biology Institute's Center for Conservation and Sustainability joined Itaipu Binacional for a 5-year partnership. The main goal is to exchange knowledge in order to optimize the effective management of flora and fauna in Itaipu's protected areas, to promote excellence in ex situ conservation of native endangered fauna at the entity's Wildlife Research Center (CIASI), and to promote the conservation of flora at a regional level.

This project closely links CIASI and protected areas in a holistic and comprehensive ecological restoration effort

at local and regional levels, and seeks to turn it into a global environmental reference center. Scientists and experts from the Smithsonian's National Zoo and Conservation Biology Institute also are working with CIASI and the Center for Protected Areas (CIAP) to become the biodiversity conservation leaders of the Alto Paraná Atlantic Forest of Paraguay.



Atlantic Forest Conservation – Paraguay, World Bank and Global Environment Facility partnership with Itaipu as executing entity

The main objective of the Atlantic Forest Conservation project and program was to foster ecological restoration in Eastern Paraguay's biodiversity corridor in the Atlantic Forest. A unique, challenging and unprecedented partnership was set up to implement this program under the agreement of the Paraguayan Ministry of Environment, with a grant from the World Bank, the Global Environment Facility (GEF), with Itaipu Binacional as the executing entity of this grant.

Itaipu Binacional implemented complex sectoral agendas by working with a multi-sectoral team of important partners that included the Ministry of Environment, the Ministry of Agriculture, the National Indigenous Peoples Institute (INDI), farmers, and NGOs to develop this large-scale restoration program, aimed at providing the last refuge for many threatened species displaced by conversion of forest into agricultural land.

The project also established innovative partnerships for technical assistance and support for restoration initiatives with small, medium and larger producers in Eastern Paraguay. These producers included, for example, the cooperatives Yguazu, Agro-silo Ybyporá, and Chololo SRL in an innovative partnership to support sustainable production of heart of palm within forest lands. Altogether, the local network extended to more than 50 organizations, including local NGOs, farmers' associations, indigenous groups, cooperatives, and others. Moreover, Itaipu Binacional has incorporated a landscape and conservation corridor approach to its reforestation program and expanded its watershed protection programs. The Entity continues to support the Paraguay Biodiversity Project, the indigenous communities and producers that have participated in the project through the provision of additional technical assistance to ensure the sustainability of investments.



Itaipu Binacional Biosphere Reserve and UNESCO Partnership

Itaipu Binacional is the first power plant to become part of the Global Biosphere Reserve Network. Its protected area of more than 100,000 hectares was recognized as a nucleus zone of the Reserve, which is the highest stage of protection in the category of Biosphere Reserves created by UNESCO in 1972. With this status, Itaipu is committed to continue the environmental actions that have already been implemented, and will have a set of rules to follow. It can also participate in and benefit from the sharing of research from the other reserves around the world, in addition to strengthening its institutional role as an organization that actively participates in the preservation of the environment. Another important achievement is the creation of a

Decentralized Management Unit (UGD), which is a new instance in the management system of the Man and the Biosphere Program of UNESCO. Itaipu will host and coordinate the first UGD of the Program in the world, which also shows the commitment of the power plant with the ecosystem.

Itaipu's nucleous zone of the Biosphere Reserve includes ten protected areas in Brazil and Paraguay and the protection belt along the Reservoir. These areas ensure the conservation of animal and plant species threatened by human activity and help to assure ecosystem services. Brazil holds the biological sanctuaries of Bela Vista (1,781ha) and Santa Helena (1,482ha), while Paraguay runs the natural reserves of Tati Yupi (2,000 ha), Pikyry (1,109ha), Itabó (15,208ha), Yvyty Rokai (2,202 ha), Limoy (14,828ha), Pozuelo (2,764ha) and Carapa (2,575ha), and a Binational Reserve, Mbaracayu (1,356ha), managed by the teams from Paraguay and Brazil.

In Paraguay, the whole country's biosphere reserve (which includes the protected areas of Itaipu) is called Itaipu Biosphere Reserve and covers a surface area of over a million hectares. It comprises an area of semi-deciduous sub-tropical forest, also known as the Upper Paraná Atlantic Forest. It is one of the most important ecosystems for the conservation of biological diversity on a global scale, because of the large number of endemic species, richness of species and original cover. It is home to large predators such as harpies, jaguars and pumas, and large herbivores, such as tapirs. There is a permanent population of over 450,000 inhabitants.

In Brazil, the biosphere reserve is called the Atlantic Forest Biosphere Reserve and it covers approximately 78 million hectares, which represents 66% of the Atlantic Forest Biome. It includes remnants of the Atlantic Forest and relevant secondary forests, tropical humid forests in mountain and connected highland systems and coastal marine environments. The moist, sub-tropical, semi-deciduous forest includes species such as *Araucaria angustifolia*, *Podocarpus lambertii* and *Drimys brasiliensis*. Associated ecosystems include upland meadows with grasses and small heaths, cerrado, mangroves, salt marsh scrublands and sand spits (Reserva da Biosfera da Mata Atlântica, 2019).







3.

**ADDITIONAL
ENVIRONMENTAL
PARTNERSHIPS**

CERTIFICAÇÃO LIFE

O Instituto de Tecnologia do Paraná – Tecpar certifica que por integrar a biodiversidade à sua gestão, compensando seus impactos mediante ações voluntárias de conservação da natureza, a organização

Itaipu Binacional

Av. Tancredo Neves, 6731
Foz do Iguaçu / Paraná / Brasil

está em conformidade com os requisitos dos

Padrões de Certificação LIFE (Versão 2.0), Guia Técnico LIFE - GTL01 (Versão 2.0),
Guia Técnico LIFE - GTL02 (Versão 2.0)

Certificado Nº 2015.003

Revisão: 02
Emissão: 23/03/2015
Válido até: 16/01/2020

A Licença de Uso da Marca de Conformidade está vinculada ao Contrato de Certificação nº pp 537/12 e ao endereço acima citado.



Alexandre Marchetti



Nilo Victor Agottani
Nilo Victor Agottani
Gerente de Certificação de Sistemas

Tânia Maria Mello de Carvalho
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Territorial LIFE: International Standard Agreement for Sustainable Territory Management

In the region where it operates, Itaipu Binacional develops a series of initiatives, actions and programs focused on territorial sustainable management, which have received various national and international awards.

The International Standard Agreement for Sustainable Territory Management is providing a methodology that enables the objective measurement of the results obtained from actions taken for the sustainable regional development of the municipalities reached by Itaipu, and how actions have really contributed to the conservation of biodiversity and the improvement of the population's quality of life.

LIFE territorial methodology, proposed by the Lasting Initiative for Earth (LIFE) Institute and Itaipu, represents an important advance in business and citizens' involvement in biodiversity conservation.

Besides looking for a company by its performance on accountable actions for biodiversity, the territorial methodology development aims at the regional

integrated approach to measure and recognize efforts towards sustainable development and positive impacts on biodiversity conservation.



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In addition to providing this measurement of the efforts, the final outcome of the Agreement will make it possible to integrate the areas of influence and the Brazilian and Paraguayan banks, by participating in the conceptual development phase of sustainable territorial management standards, the empowerment of citizens and the application of standardized tests (PGST), consolidating, moreover, the socio-environmental management process that Itaipu already promotes under the new systematized model that can be used to calculate and measure results. Also, the Agreement is important in that it allows the final product to be taken over by the Itaipu Technological Park Foundation (FPTI) and may then be replicated in Itaipu Binacional's area of operation in the Paraguayan and Brazilian sides. The final product of the Agreement is the standard for Sustainable Territory Management, with national and international recognition, in addition to software developed and tested in the region.

Itaipu, with the participation of the institutions involved, will rely on the structure and experience in collecting and analyzing regional sustainability data from the FPTI and the recognized expertise of the LIFE Institute in coordinating groups and technical work to the development and operationalization of international management and certification systems.

Watershed Program

In 2003, Itaipu Binacional expanded its mission to encompass a more global, comprehensive approach to sustainability by launching the “Cultivating Good Water” program, a systemic and participatory water management model focused on the environmental conservation and the well-being of communities around



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the region where the hydroelectric plant is located in the Paraná Watershed 3. The former Cultivating Good Water program is now called the Watershed Program.

Itaipu Binacional's Watershed Program works according to the concept of the river watershed, so the planning and execution of socio-environmental actions are carried out by micro-watersheds, with a strong participatory component. It is then based on integrated management of river basins and operates in the basin, sub-basin and micro-basin, aiming to guarantee the quantity and quality of the waters and also the sustainability of the territory. The program depends on community partnerships, between Itaipu Binacional and more than 2,100 partners in the 29 municipalities that make up the Paraná Basin 3, an area of 8,000 square kilometers inhabited by more than one million people. The program is developed in more than 200 micro-basins and their respective communities. The performance transcends the political-administrative division of the municipalities respecting the planning unit of nature itself.

The immediate beneficiaries of the program are the residents of the microbasins of the Hydrographic Basin of Paraná 3 (BP3). The program represents a multi-stakeholder partnership that includes environmental organizations, researchers, universities, associations, cooperatives and NGOs. It also includes community representatives, municipalities, state and federal agencies, cooperatives, rural producers, universities, companies, schools, indigenous communities, city halls, local communities, environmental organizations, researchers, universities, associations, cooperatives and NGOs, among others. By 2014, the program had proved that strategic infrastructure projects (especially hydropower plants such as Itaipu Binacional) should be managed on the firm basis of new governance and social participation to become poles of sustainable local development and positive stakeholder engagement in their areas of influence. It also has shown how an ecosystem services approach including climate change adaptation strategies and the nexus among water, energy and food can be put into practice in a strong and feasible way. In addition to all the results in terms of environmental protection and in social and economic inclusion, the cultural change in the relationship among people inside the communities, and in the relationship between people and nature, is another legacy of the program.



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4.

**PARTNERSHIPS
SUPPORTING SOCIAL
PROGRAMS AND
PROJECTS**



Nilton Rolin

ITAGUAPY Health Foundation Ministro Costa Cavalcanti Hospital

The objective of this partnership is to provide high-level preventive and curative medical and hospital care to the community, through agreements with the public and private health systems and provide conditions for the training and improvement of medical and health personnel. This activity includes partners from federal, state and municipal governments, Itaipu and educational and research institutions. Since 1994, the hospital has been managed by the Itaguapy Health Foundation (Fundação de Saúde Itaguapy) and starting in 1996 the hospital began serving patients from the Brazilian Unified Public Health System (SUS). The hospital now has over 16,000 square meters of floor space. In 2007, it achieved a level 1 Hospital Certification, which serves as proof of its quality.

Currently, Costa Cavalcanti Hospital ensures emergency room and high complexity hospital services to the entire population of Foz do Iguaçu and the surrounding area. The hospital maintains an agreement with Brazil's Unified Public Health System (SUS) and has 200 beds, 120 for SUS users and 80 for private health plan and agreement users. In 2018, the Foundation was accredited as the first Level III of Excellence institution in

Paraná. There were more than 3,400 births, over 2,000 surgeries performed, 5,688 emergency room patients, over 42,000 outpatient visits, and close to 19,700 patients attended at the Oncology Center. In 2019, Itaipu decided to invest R\$ 64,7 million in the expansion of the hospital.

Tesãi Foundation

The Tesãi Foundation was created by Itaipu in Paraguay to provide medical services to its staff, beneficiaries and to people without economic resources in the region. Itaipu provides financial assistance to the Tesãi Foundation in order to cover its social agreement designed to support health services at no cost for communities in need located in the area of influence of Itaipu.

The Tesãi Foundation provides health services to the Infant-Maternal Hospital of Ángeles, District of Franco Hospital, the Maternal and Emergencies Hospital of

Yguazú, and the District Hospital of the City of Hernandarias. The Foundation has focused on strengthening health institutional arrangements, personalized treatment and excellent services to its beneficiaries and the communities, always trying to optimize available resources.

In addition to this, Itaipu works in partnership with civil society organizations and multilateral organizations to finance and execute projects related to the strengthening of public health care in Paraguay. The objective of these associations is complementary to the work of the Ministry of Public Health of Paraguay, supporting the improvement in infrastructure, the provision of medicine, equipment and ambulances, as well as the training of medical personnel in areas with limited or poor coverage of health services. The activities focus on health care centers that care for pregnant women, newborns, children, indigenous populations and vulnerable people.

In the area of preventive medicine, Itaipu supports binational anti-rabies vaccination campaigns and child multi-vaccination efforts in Paraguay, besides the Binational Campaign against Dengue. The Health on the Border program has its own budget. Funding and the technical and political bases are defined by the Itaipu Health Work Group made up of Brazilian and Paraguayan representatives from various governmental spheres related to the public.

Border Health Program

The objective of this partnership is to support health actions in the area of influence of Itaipu and at the trinational border region, including neighbor municipalities from Brazil, Paraguay and Argentina, in line with the respective public sector policies. Members of this partnership include Ministries of Health of Brazil, Argentina and Paraguay, health secretariats, health professionals, and public and private institutions.

Itaipu Binacional, via the Health on the Border program, helps increase the number of hospital beds in the area and promotes vaccination, epidemic disease control campaigns, and waterborne diseases. This program has been developed in collaboration with the Brazilian and Paraguayan Ministries of Health, city administrations and state sanitary institutions. It operates in 28 Brazilian cities and 31 cities in Paraguay, reaching 1.5 million people. In Foz do Iguaçu, bed numbers are on the increase, and high complexity services like oncology and heart surgery are provided. In Ciudad del Este, mother and child related specialties have been given more emphasis.





5.

**PARTNERSHIPS
SUPPORTING RESEARCH,
DEVELOPMENT AND
INNOVATION**



Caio Coronel

Itaipu Technological Park (ITP)

The Itaipu Technological Park was created in 2003 with the comprehensive goal of becoming a teaching and research center dedicated to education, science and technology. Today, the ITP is home to three public universities, nine research institutions and development agencies (national and international), 26 private companies and 55 laboratories and research centers. The ITP contributes to sustainable development, promoting integrative actions among education, research, technology, innovation and business. Consequently, it also promotes entrepreneurship and the generation of jobs and income. The ITP covers an area of 50,000 square meters where 2,000 people work, including employees, trainees, partners, entrepreneurs, researchers, teachers and students. The ITP includes partners representing all of the stake-holders including federal, state and municipal governments, incubated companies, higher education institutions, public schools and Third Sector organizations. Besides research and research support agencies, the ITP also houses a business development center and a university campus, the Unioeste Engineering and Exact Sciences Center.

Renewable Energy Platform

Itaipu Binacional Renewable Energy Platform seeks to promote regional energy efficiency and sustainable development from the use of solar, wind, biomass and hydropower in the region of its Reservoir. The aim is to generate local economic and technological development, create new business opportunities and provide energy autonomy for the agricultural and agroindustrial sectors of the western region of Paraná.



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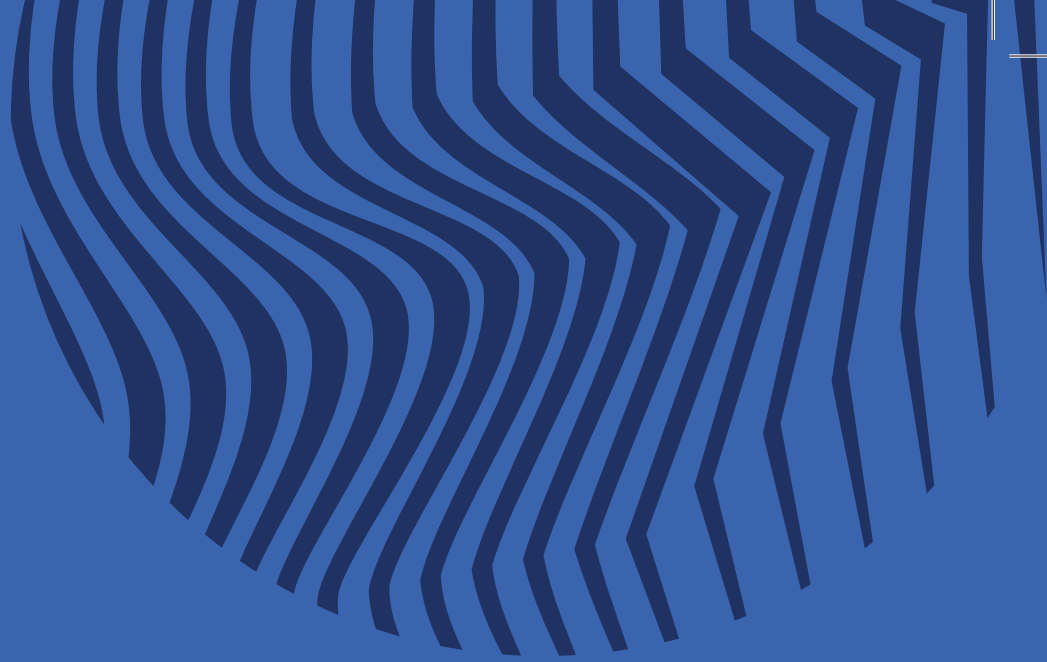
The partnership includes the following organizations: the International Center for Renewable Energies-Biogas (CIBiogás), the Itaipu Technological Park (ITP), the International Energy Agency (IEA), the Federal Technological University of Paraná (UTFPR), the Federal University of Paraná Foundation (Funpar), the Brazilian Agricultural Research Corporation (SEBRAE / PR), the OCEPAR System, the Pontifical Catholic University of Rio Grande do Sul (PUC-RS), and cooperatives in the Western Region of Paraná (Embrapa-Florestas).

important line of research of the EV program is the development of the Intelligent Energy Storage System (IESS), which aims at enabling the supply of electricity to isolated communities. This work combines the use of clean and renewable sources of energy, such as solar and wind, with a sophisticated storage system based on 100% recyclable sodium batteries. The program is being implemented by Itaipu in partnership with many organizations including teaching and research entities, and national and international organizations.

Sustainable Electric Mobility

The main objective of the Sustainable Electric Mobility Program is to foster research and innovation in technology for the development of low emission mobility solutions. The program aims to find electric mobility solutions that are technically and economically feasible, implying the rational use of natural resources, and that can minimize the environmental impact of the transport sector. Itaipu's partners in this program include teaching and research entities, and national and international public and private companies. An





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PARTNERSHIP



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PARTNERSHIPS
FOR THE GOALS

